

1 IN THE UNITED STATES DISTRICT COURT
 2 FOR THE NORTHERN DISTRICT OF OKLAHOMA

3 STATE OF OKLAHOMA, ex rel,
 4 W.A. DREW EDMONDSON, in his
 capacity as ATTORNEY GENERAL
 5 OF THE STATE OF OKLAHOMA,
 et al.

6 Plaintiffs,

7 V.

8 TYSON FOODS, INC., et al.,

9 Defendants.

No. 05-CV-329-GKF-SAJ

11 REPORTER'S TRANSCRIPT OF PROCEEDINGS

12 FEBRUARY 20, 2008

13 PRELIMINARY INJUNCTION HEARING

14 VOLUME II

15 BEFORE THE HONORABLE GREGORY K. FRIZZELL, Judge

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 UNITED STATES COURT REPORTER

EXHIBIT

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15 PROCEEDINGS

16 February 20, 2008

17 MR. JORGENSEN: Good morning, Your Honor.

18 THE COURT: Good morning, Mr. Jorgensen.

19 MR. JORGENSEN: May I start with a housekeeping
20 matter?

21 THE COURT: You may, sir.

22 MR. JORGENSEN: When you get sued, it's the usual
23 thing to come to court on hearing day, but the company Willow
24 Brook asked if I would say to you that they're not here.

25 THE COURT: We got the notice. The notice that they

1 Q. All right. Well, then let's go through it and see what
2 I've missed here. We have all the Oklahoma data in the first
3 chart which, I think, is similar to what we just saw, is it
4 not?

5 A. That one is the same, yes.

6 Q. So the next chart is, in fact, the Illinois River; is that
7 correct?

8 A. That's correct. So the same ODAFF data were analyzed for
9 just the Illinois River Watershed and similar graphs were
10 produced as to the ones we've just talked about.

11 Q. And what does it tell us that happens in the Illinois
12 River Watershed?

13 A. It's a very similar story. I guess the slight exception
14 is that, in fact, waste is disposed of even closer to houses in
15 the IRW than the rest of Oklahoma. So again, approximately 30
16 percent within a mile, 60 percent within about two miles -- or
17 67 percent within two miles or so, and 80 percent within
18 approximately 3.6 miles or so.

19 Q. From the ODAFF records, can you tell when these land
20 applications occurred?

21 A. Well, some of the ODAFF records do identify the timing of
22 land application. So not all of those records identify timing.
23 For those for which timing could be identified and for which
24 the land application was in the Illinois River Watershed, that
25 analysis was conducted.

1 Q. And is the last chart in this Exhibit 132 reflective of
2 that analysis?

3 A. Yes, so Figure 5 identifies the timing of litter onto the
4 land within the IRW based on the ODAFF records between '99 and
5 2004.

6 Q. And what is this chart essentially telling us about that
7 application?

8 A. Well, this shows that the majority of the waste disposal,
9 about 55 percent of waste disposal, occurred between February
10 and May for that time period.

11 Q. Now, did you also have an opportunity in looking at
12 Rausser and Dicks' declaration prepared for the defendants in
13 this case, if he made or they made any determination about
14 where poultry waste is applied?

15 A. Yes, the Rausser and Dicks information indicated that all
16 345,000 tons of poultry waste that was generated in the IRW was
17 applied in the IRW based on their base assumption.

18 MR. GARREN: One moment. I'll pass the witness, Your
19 Honor.

20 THE COURT: Cross-examination.

21 MR. GEORGE: Your Honor, my examination will probably
22 take about 40 minutes. I don't know if that should be factored
23 into an afternoon break, whether you'd rather do it now or
24 later.

25 MR. GARREN: If I may move for the admission of the

1 exhibits that we referred to, I'll do so at this time.

2 MR. GEORGE: No objection.

3 THE COURT: Very well, do we have numbers of those
4 exhibits, Mr. Overton?

5 MR. GARREN: I'll make sure he gets them.

6 THE COURT: Very well. Let me ask our
7 transcriptionist here, would this be a good time to break or do
8 you want to go on a little further? Let's take a 10 minute
9 break.

10 (Recess.)

11 THE COURT: Mr. George.

12 MR. GEORGE: Thank you, Your Honor. Before I examine
13 the witness, can I move for introduction of two exhibits that
14 were used on cross-examination of Dr. Fisher?

15 THE COURT: Yes, sir.

16 MR. GEORGE: They are identified as Defendants'
17 Exhibit PI-44 and Defendants' Exhibit PI-43.

18 THE COURT: Any objection to 43 and 44?

19 MR. GARREN: No, Your Honor. It's my understanding
20 that Mr. George provided a complete copy for Exhibit 43 and we
21 have no objection.

22 MR. GEORGE: That is correct.

23 THE COURT: Very well, PI-43 and PI-44 are admitted.

24 MR. GEORGE: Thank you, Your Honor.

25 CROSS-EXAMINATION

1 BY MR. GEORGE

2 Q. Dr. Engel, good afternoon. You and I have met before,
3 have we not?

4 A. Yes.

5 Q. Dr. Engel, you recall providing an affidavit in support of
6 the attorney general's motion for a preliminary injunction in
7 this case?

8 A. I do.

9 Q. Have you reviewed that affidavit recently?

10 A. It's been kind of recently, I suppose.

11 Q. Can we put it on the screen, Dr. Engel's affidavit. And
12 could you go to paragraph -- I think it's on page 3. Sir, do
13 you see on page 3, the estimate of the amount of poultry litter
14 generated in the Illinois River Watershed annually that you
15 provided in your affidavit?

16 A. Yes.

17 Q. And can you state that number for the record, please?

18 A. Approximately 347,000 tons.

19 Q. Dr. Engel, today I heard you to testify to several numbers
20 other than that one. You testified that you had calculated
21 345,000 as shown on Demonstrative Exhibit 427; correct?

22 A. Yes.

23 Q. You also, I believe, testified that using a different
24 method that you had arrived at an estimate of 445,000?

25 A. Correct.

1 Q. And another estimate produced a range of between 316 and
2 380 tons; correct?

3 A. Correct, but those were dry.

4 Q. Okay. And still you had another estimate and method that
5 you employed produced a number of approximately 528,000 tons.
6 Do you recall that?

7 A. Yes.

8 Q. Dr. Engel, what is your number today?

9 A. Well, the most conservative of the numbers is the 345,436,
10 if I can see correctly from here. It's a little bit tough. So
11 certainly there are a range of estimated values and the
12 smallest of those and the most conservative of those is 345,000
13 and change.

14 Q. Dr. Engel, you believe that estimate of 345,436 is a
15 reasonable estimate of the amount of poultry litter produced in
16 the Illinois River Watershed annually?

17 A. I do.

18 Q. Now, sir, out of that 345,000 ton estimate annually, how
19 much have you been able to document has actually been land
20 applied in the watershed?

21 A. Well, I guess the amount that is actually documented as
22 being land applied would be with the ODAFF records.

23 Q. Can we go to those, Exhibit 140, please, State's Exhibit
24 140. And you discussed this exhibit with Mr. Garren, do you
25 recall that, you created this summary?

1 A. Yes.

2 Q. And I apologize, I'm not sure that I fully followed it.

3 Can you go to the second page, to the summary section. And

4 tell me which of those numbers or combination of numbers would

5 total the amount that you have been able to document were land

6 applied over this period of time in the Illinois River

7 Watershed? Do you still have it, Dr. Engel?

8 A. I'm looking here, just a moment. So the -- probably the

9 easiest place to look at that is on the very last page of this

10 exhibit.

11 Q. Okay. Can you point me to the number that would reflect

12 the total amount that you were able to document has been land

13 applied over this period of time in the Illinois River

14 Watershed?

15 A. So based on the ODAFF records for which there was

16 sufficient data to make that determination, the disposed of in

17 the Illinois River Watershed would be 116,400 tons.

18 Q. And over what time period were those 116,400 tons land

19 applied?

20 A. The records range from March 31, 1998 through April 5,

21 2006, with the majority of those being 2001 to '4, as I recall.

22 Q. So that would be about an eight-year time frame for

23 records, do I have that right?

24 A. Approximately.

25 Q. And so if we wanted to take that number and turn it into

1 an annual average based upon your documented land application,
2 that would be somewhere around 15,000, is that right, 116
3 divided by 8?

4 A. Yes, if you simply do that math, that would be correct.

5 Q. Now, sir, in this document, Exhibit No. 140, you use the
6 term poultry waste disposal where disposal appears
7 consistently. Is that the term that is used in the Oklahoma
8 Department of Ag records that you reviewed to assemble this
9 document?

10 A. I don't recall what term is used in those records.

11 Q. As we sit here today, sir, do you have any recollection
12 that the Oklahoma Department of Ag records regarding land
13 application of poultry litter refer to that as disposal?

14 A. I don't have a recollection.

15 Q. Okay. Is the term disposal your term in this document,
16 that's the term you chose to describe it with?

17 A. It's a term that would commonly be used in literature when
18 describing poultry litter land application or disposal. It's a
19 common term in many places.

20 Q. Now, with respect to the land application events that are
21 recorded here on Exhibit 140, why are poultry farmers in
22 Oklahoma reporting the amount of poultry litter that they have
23 applied? Do you know?

24 A. I'm not sure that it's the poultry growers that are
25 reporting those numbers. So recall that the ODAFF records are

1 made up of producer data as well as land applicator's data. So
2 I believe the application piece of this is largely from the
3 land applicator's portion of those records.

4 Q. Isn't it true, sir, that the reports that you have
5 summarized here are reports that are made by individuals who
6 are land applying poultry litter because they have received a
7 permit from the Oklahoma Department of Ag to do so?

8 MR. GARREN: Object to the form of the question, Your
9 Honor.

10 THE COURT: Sustained. Rephrase.

11 Q. (By Mr. George) Isn't it true, Dr. Engel, that the
12 records that you are summarizing here reflect reports made by
13 poultry growers or others pursuant to animal waste management
14 plans that have been issued by the State of Oklahoma?

15 A. That's my understanding.

16 Q. Okay. So you're not suggesting, are you, sir, that any of
17 these land application events that you have summarized here
18 were unlawful, are you?

19 A. No, I'm not.

20 Q. Now, Dr. Engel, let's use your 345,000 ton estimate, okay?

21 A. Okay.

22 Q. Out of that amount, how much of that tonnage is bedding as
23 opposed to excrement?

24 A. I guess I'm not sure as to the amount exactly that would
25 be bedding.

1 Q. Well, you do concede, do you not, sir, that a substantial
2 portion of the 345,000 tonnage would be comprised of bedding?

3 A. Substantial, I'm not sure I would agree with substantial,
4 but certainly some portion of the 345,000 would be bedding.

5 Q. What are the common types of bedding material used by
6 poultry growers in the Illinois River Watershed?

7 A. I believe that would be wood shavings and rice hulls.

8 Q. Dr. Engel, are you aware of any particular hazards
9 associated with placing rice hulls or wood shavings on the
10 ground?

11 A. I'm not, but I guess I would go further that once they
12 have been mixed with the poultry waste, they, too, would be
13 carrying bacteria, would be carrying other materials with them.
14 and it would be very, very difficult to separate them.

15 Q. Now, out of the 345,000 figure estimate, you agree that
16 some of that amount that is produced in the watershed is
17 actually exported; correct?

18 A. Yes.

19 Q. And you heard Dr. Fisher testify that he was aware that
20 last year BMPs, which is an organization that operates in this
21 watershed, have been involved in exporting about 70,000 tons.
22 Do you recall that?

23 A. I recall that, yes.

24 Q. Now, are you also aware, sir, from having spent time in
25 the watershed and studied the marketplace, if you will, for

1 poultry litter, that some growers actually export their litter
2 outside of BMP, just arm's length transactions between them and
3 a buyer who happens to be on the outside of the watershed?

4 A. That would certainly be a possibility.

5 Q. Have you attempted to document that export?

6 A. I have -- I guess to the extent that the ODAFF records
7 would document that, you know, that's been described in Exhibit
8 140.

9 Q. Now, with respect to the ODAFF records that you reviewed,
10 you reviewed those in part to support your opinion about how
11 far poultry litter may generally move from a house before it is
12 land applied; is that right?

13 A. Correct.

14 Q. And I believe a fair summary of your testimony was
15 somewhere between one and five miles is pretty common; is that
16 right?

17 A. Typically five miles or less would be common for 80
18 percent of the disposal.

19 Q. That's with respect to the Oklahoma side; correct?

20 A. Correct.

21 Q. Now, sir, you also received information from the Arkansas
22 Natural Resources Commission; correct?

23 A. I received some information from them, yes.

24 Q. Sir, did you perform any statistical analysis regarding
25 the typical range of transportation for poultry litter on the

1 Arkansas side of the basin?

2 A. Well, unfortunately the form of the ANRC data is such that
3 it doesn't permit that type of analysis.

4 Q. Are you aware that there are some land uses that are
5 constraining on agricultural practices in the Arkansas side of
6 the basin that are not present in Oklahoma?

7 A. Certainly.

8 Q. There's substantial urban areas in the Arkansas side of
9 the basin; correct?

10 A. Correct.

11 Q. Sir, what, if any, basis do you have to suggest to this
12 Court that poultry litter transportation and usage practices on
13 the Arkansas side of the basin, in terms of how far it may
14 move, is the same as what you have calculated for Oklahoma?

15 A. I guess I would point to an Arkansas extension
16 publication. I believe the Rausser-Dicks declaration that you
17 provided assumed that all waste in the watershed was land
18 applied in the watershed, all 340 some-odd thousand tons. So,
19 you know, based on those pieces of information, I think it's
20 reasonable to assume that, you know, it's the same in Arkansas.

21 Q. So you're relying upon the defense experts of Rausser and
22 Dicks for your opinion regarding litter application practices
23 in Arkansas?

24 A. Well, I would rely more heavily on the University of
25 Arkansas extension publication that indicates this is quite

1 close. And there would be a number of refereed publications
2 from University of Arkansas from Edwards from Sharpley and
3 others that also identify waste application as being quite
4 close to where it's generated in Arkansas.

5 Q. Sir, do any of those publications that you are referring
6 to employ the statistical analysis that you employed in
7 Oklahoma to arrive at a range of transportation?

8 A. Those specific studies did not. I guess I could point you
9 to a couple of other studies that used somewhat different
10 techniques but arrived at essentially the same conclusions.

11 Q. Sir, are you aware of the operations of George's Farms in
12 this watershed?

13 A. I'm not sure what you mean if I'm aware of the --

14 Q. You're aware that one of the -- I'm sorry, I didn't mean
15 to cut you off. Were you through?

16 A. I wasn't sure what you meant, sorry.

17 Q. It was a poor question, I apologize. You have identified
18 farms in Arkansas that are under contract with George's;
19 correct?

20 A. Correct.

21 Q. You're aware they do operate in the Arkansas side of the
22 Illinois River Basin?

23 A. I would have to study the map carefully to make sure I
24 didn't misspeak, but I assume they do.

25 Q. Are you aware of the fact that some of the farms under

1 contract with George's on the Arkansas side have been
2 transporting poultry litter as far across the state as to the
3 Delta region on the eastern part of the State of Arkansas?

4 A. I wasn't aware of that.

5 Q. That would substantially increase your average of
6 transportation, would it not, if you included that in your
7 analysis.

8 A. It may and may not. So the statistics I provided really
9 were describing the spatial distribution of that
10 transportation. So again, in those statistics, they indicated
11 that approximately 80 percent of the litter was applied within
12 3.6 miles in the Illinois River Watershed. So one could export
13 up to 20 percent to China, I suppose, if they wished, and that
14 wouldn't change those numbers. So export to the Delta may or
15 may not change those numbers.

16 Q. Dr. Engel, your 345,000 tonnage estimate is based upon the
17 number of active houses provided to you by Bert Fisher; is that
18 right?

19 A. That's correct.

20 Q. If Mr. Fisher's estimate of the number of active houses is
21 overstated, then your estimate would be overstated in terms of
22 litter production; is that right?

23 A. Well, using this technique, that would be correct. And I,
24 again, would note that this is based on active houses for which
25 integrator has been identified. And I recall that there's some

1 130 additional houses that have been identified as being active
2 for which an integrator has not been identified. And so,
3 again, to be conservative, those approximately 130 active
4 houses were not included in this estimate of 345,000 tons.

5 Q. Well, sir, are there integrators who have contract growers
6 in the Illinois River Watershed who have not been sued by the
7 attorney general?

8 A. To my knowledge, no. The issue with the unidentified
9 integrators to these houses is that they sit in positions from
10 which it's been impossible to determine from public vantage
11 points who the integrator might be. Some of the records have
12 not been sufficient to identify the integrator. So, you know,
13 as Dr. Fisher and his group continue to analyze additional
14 records, it's highly likely that some of that additional 130
15 will ultimately have an integrator identified.

16 Q. Let me switch gears on you, Doctor. You and your wife
17 raise chickens on your farm back in Indiana, do you not?

18 A. Well, my wife has five chickens or so, as I recall.

19 Q. Those chickens produce litter and manure that has bacteria
20 in it; correct?

21 A. Yes.

22 Q. You have children living on that farm; correct?

23 A. Well, children may be strong.

24 Q. Do you have a child?

25 A. They're adults.

1 Q. You have had children living on that farm; correct?

2 A. Correct.

3 Q. Have you taken any particular precautions to protect
4 yourself or your wife or your children from bacteria in poultry
5 litter?

6 A. I have not.

7 Q. You and your wife use the litter and manure generated from
8 those chickens as fertilizer on your farm, do you not?

9 A. Yes.

10 Q. Use it in your garden to increase production of
11 vegetables; is that right?

12 A. Yes.

13 Q. And you've applied it to pastures to increase forage
14 production; correct?

15 A. Well, the waste from five chickens doesn't go far in
16 improving pasture production for 100 acres.

17 Q. Have you applied it to pastures?

18 A. Yes.

19 Q. Okay. And what was the purpose of applying it to a
20 pasture?

21 A. For fertilizer purposes.

22 Q. Was your comment that you wish you had more?

23 A. Well, I wish she had fewer livestock in general, but
24 that's another discussion.

25 Q. Go back to the affidavit. Dr. Engel, you were retained in

1 this case not necessarily as the chicken house counter, but as
2 a fate and transport expert; correct?

3 A. That was one of the things for which I've been retained.

4 Q. In fact, in your affidavit, can you read the highlighted
5 sentence where you are describing for the Court what is your
6 role in this case?

7 A. Do you want me -- just the highlighted piece?

8 Q. Yes, sir.

9 A. So I've been asked to evaluate the movement of this waste
10 and its constituents in the streams, rivers and groundwaters
11 within the IRW and into Lake Tenkiller.

12 Q. And, sir, your background is one in which you have had
13 opportunity to evaluate on a watershed-wide basis the
14 contribution of various sources to water quality; correct?

15 A. I have.

16 Q. And, in fact, you have a pretty extensive background, do
17 you not, sir, in the area of hydrologic modeling?

18 A. I do.

19 Q. And you have used hydrologic models -- let me back up for
20 a second. Can you explain to the Court what is a hydrologic
21 model?

22 A. Certainly. So typically these would be a series of
23 equations that have been coded into a computer code to create a
24 representation of how water behaves in the environment. So
25 how -- there may be rainfall, how that may interact with the

1 ground surface, some of that potentially moving into the
2 groundwater, some of that potentially running off and carrying
3 materials with it.

4 Q. You agree there are some pretty sophisticated computer
5 models out there that can be used to evaluate the likelihood
6 and relative contribution of various sources impacting water in
7 a watershed?

8 A. Certainly.

9 Q. Have you conducted a water quality model or fate and
10 transport model, sir, in order to evaluate the extent to which
11 the land application events that you have identified would be
12 likely to affect the Illinois River or its tributaries?

13 A. Not for bacteria.

14 Q. You worked on that for other constituents?

15 A. For other constituents.

16 Q. But you haven't performed that analysis with respect to
17 bacteria?

18 A. Not for bacteria.

19 Q. Were you asked to perform that for bacteria?

20 A. I was not.

21 Q. Now, these hydrologic models that you're using on some
22 other part of the case and that you've worked with in the past,
23 they're commonly used in the formulation of TMDLs, are they
24 not?

25 A. Many of them are used for TMDL purposes.

1 Q. Sir, you have experience, do you not, sir, in working with
2 regulatory bodies in evaluating source contribution through
3 models and other devices to fashion TMDLs or draft TMDLs?

4 A. I have, yes.

5 Q. Sir, you will agree with me as someone who has expertise
6 in fate and transport that there are a host of site-specific
7 factors that will control whether bacteria from a particular
8 poultry litter application or any other potential surface
9 source can be reasonably expected to make it to the Illinois
10 River or Lake Tenkiller?

11 A. Yes.

12 Q. And some of those factors would include what,
13 site-specific factors?

14 A. Well, the site-specific factors may include soils, may
15 include location with respect to streams or other features of
16 interest, may include topography, may include application of
17 waste, amount of waste, content of that waste. So those would
18 be some of the more important factors.

19 Q. And each of those factors in a system with the diversity
20 of the Illinois River Watershed would vary from land
21 application site to land application site; correct?

22 A. They would certainly have the potential to.

23 Q. Sir, have you conducted any analysis to determine whether
24 any particular land application site identified by you in your
25 work in this case has, in fact, contributed to the bacteria

1 levels found in the Illinois River, its tributaries or Lake
2 Tenkiller?

3 A. I have not conducted such an analysis.

4 Q. Are you familiar with the term hotspots?

5 A. Yes.

6 Q. What does that term mean in the context of watershed
7 planning?

8 A. Certainly. So the discussion we just had about how
9 site-specific kinds of factors may influence the potential
10 movement of water and constituents that it may carry varies.
11 Those locations that would tend to have combinations of these
12 factors that would contribute substantial and disproportionate
13 amounts of contaminants might be termed hotspots. And there
14 would be other terms as well.

15 Q. Sir, are you aware of the fact that the EPA has encouraged
16 regulators to not make generalizations about source categories
17 but -- in their regulatory programs, but to focus on those
18 hotspots in trying to control and improve water quality?

19 A. That's an approach that's commonly used, yes.

20 Q. Sir, you've spent a good bit of time today discussing the
21 amount of poultry litter generated in the watershed. Have you
22 evaluated the magnitude of any other source of bacteria in the
23 watershed?

24 A. Well, with poultry litter I didn't evaluate the amount of
25 bacteria for poultry litter. And you know, I did some quick

1 back of the envelope calculations based on some materials that
2 Dr. Clay provided to try and understand the approach he was
3 using and how he arrived at bacteria, but that was the extent
4 of any bacteria calculations.

5 Q. Sir, you have been involved, have you not, sir, in the
6 past in studies that have found that the urbanization of a
7 watershed can increase the level of bacteria in surface water?

8 A. Yes, urbanization and, therefore, the sources of
9 contamination that go with it have the potential to do just
10 that.

11 Q. And you are aware, are you not, sir, that there has been
12 substantial urbanization of both Benton and Washington County
13 in the IRW, the Illinois River Watershed, in the past 20 years?

14 A. Correct, but I guess one needs to be a little bit careful
15 in connecting those statements for the following reasons. So
16 it's important as to the land use that's converted to the urban
17 land use. So if one were to convert pasture that had heavy
18 application of poultry litter to urban, in fact, the bacteria
19 might go down. If on the other hand, you converted forestry to
20 urban, then the bacteria from that area may go up.

21 Q. You're not suggesting, are you, sir, that every area of
22 urban development in northwest Arkansas was previously a
23 pasture that had received poultry litter, are you?

24 A. I don't think I said that.

25 Q. You don't have any data to support that notion; correct?

1 A. I have not analyzed any data to look at that issue.

2 Q. The installation of parking lots and impervious surfaces
3 will result in increased bacteria levels in surface waters;
4 correct?

5 A. Well, it has the potential to. So just the parking lot
6 itself will not, but it has the potential to allow materials to
7 accumulate there and has the potential for increased runoff.

8 Q. You looked at aerial photographs for Northwest Arkansas
9 over the last 20 years to determine the degree to which
10 previously foraged areas have been converted to concrete or
11 asphalt surfaces?

12 A. I've seen photographs, but I've not conducted the kind of
13 analysis you're describing.

14 Q. Was that time series striking to you in terms of the
15 amount of development?

16 A. Certainly.

17 Q. Sir, did you estimate the amount of cattle waste generated
18 in the Illinois River Watershed?

19 A. I did not.

20 Q. Did you estimate the amount of wastewater containing
21 bacteria that is discharged directly into the Illinois River?

22 A. I've seen values with respect to wastewater, but did not
23 look at the bacteria component of those. I'm not sure that
24 I've seen any data related to the bacteria portion of any
25 wastewater discharges.

1 Q. You don't deny, do you, sir, that wastewater from a POTW
2 would contain bacteria?

3 A. It certainly has a --

4 MR. GARREN: Your Honor, I'm going to object. I've
5 been patient, but we're going down a line of an area that this
6 expert has said he was not hired nor has he done work on and
7 that is bacteria. He's testified about waste and if the
8 questions are about waste, then I'll remove my objection, but
9 not bacteria.

10 THE COURT: Any response?

11 MR. GEORGE: Your Honor, the point is what he didn't
12 consider and that's relevant to the credibility of his opinion.

13 THE COURT: Overruled.

14 Q. (By Mr. George) Dr. Engel, did you produce an estimate of
15 the number of geese or ducks who deposit fecal matter that may
16 contain bacteria into the streams and rivers as part of your
17 work in this case?

18 A. I did not.

19 MR. GEORGE: Your Honor, I'll pass the witness.

20 THE COURT: Mr. Garren.

21 REDIRECT EXAMINATION

22 BY MR. GARREN:

23 Q. Dr. Engel, are documents still being reviewed and records
24 still being updated with regard to the waste analysis that
25 Mr. Fisher is assisting you with?